

### **REMARKS**

Claims 11-20 are pending and under examination. Applicants respectfully traverse the rejection of claims 11-19 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,396,984 (“*Cho*”), and the objection to claim 20.

#### **Regarding the 35 U.S.C. § 102(b) Rejection of Claims 11-19:**

Applicants request reconsideration and withdrawal of the rejection of claims 11-19 under 35 U.S.C. § 102(b) as being anticipated by *Cho*. In order to establish anticipation under 35 U.S.C. § 102, the Office Action must show that each and every element as set forth in the claims is found, either expressly or inherently described, in *Cho*. See M.P.E.P. § 2131. *Cho*, however, does not disclose each and every element of Applicants’ claims. Specifically, *Cho* does not disclose at least Applicants’ claimed “coupling waveguide ... comprising a tapered core of a substantially constant refractive index” and “receiving waveguide ... comprising a core of a substantially constant refractive index greater than the refractive index of the tapered core of the coupling waveguide.” as recited in claim 11.

In contrast, *Cho* discloses “a mode shape converter ... adapted to couple a mode of the optical fiber with a mode of the input or output terminal of [a] function executing unit...” *Cho*, Abstract. *Cho* further discloses that “[t]he lower rib waveguide 304, core 306, and upper rib waveguide 308 are made of the same material.” *Cho*, col. 5, lines 5-7 (emphasis added). In addition, *Cho* discloses that “[t]his coupling region has a double rib waveguide structure having a core made of a single medium.” *Cho*, col. 5, lines 35-37 (emphasis added). Moreover, in the manufacture of *Cho*’s converter, “a polymer is coated over the etched lower clad 706, thereby forming a core 708,” and later “[u]sing the etch mask pattern 710, the core 708 is then dry-etched to a depth determined in the above procedure, thereby forming an etched core 712 and an upper rib waveguide 714....” *Cho*, col. 7, lines 32-41 (emphases added). It is clear that the two

waveguides of *Cho* are made of the same material and have the same index of refraction.

Therefore, *Cho* does not disclose Applicants' claimed "coupling waveguide ... comprising a tapered core of a substantially constant refractive index" and "receiving waveguide ... comprising a core of a substantially constant refractive index greater than the refractive index of the tapered core of the coupling waveguide," as recited in claim 11 (emphasis added).

The Office Action alleged that "when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent." Office Action, page 4. Applicants respectfully disagree. Without conceding that *Cho* discloses the same physical shape, Applicants first note that the claimed relative refractive index properties are not inherent in the physical shape of the waveguide, but depend on the material used and the actual refractive index of each portion. However, *Cho* neither discloses anything about the material of the waveguide nor discloses the refractive index relationship as recited in claim 11, as discussed above. Applicants also note that the claimed difference between the refractive indices is explicitly absent, and by extension not inherent, in the physical structure of *Cho*, because *Cho* uses the same material for the core 712 and the upper rib waveguide 714 as discussed above. The recitations in claim 11 are therefore not inherent in *Cho*.

Since *Cho* does not disclose each and every element of independent claim 11, *Cho* does not anticipate Applicants' independent claim 11 under 35 U.S.C. § 102(b). Therefore, independent claim 11 should be allowable over *Cho*. Independent claim 19, while of different scope, contains recitations similar to independent claim 11, and should also be allowable for at least the same reasons as independent claim 11. In addition, dependent claims 12-18 should also be allowable at least by virtue of their dependence from base claim 11, and because they recite additional features not disclosed in *Cho*. Accordingly, Applicant respectfully requests withdrawal of the 35 U.S.C. § 102(b) rejection.

**Regarding the Objection to Claim 20:**

As discussed above, claim 19 is allowable over *Cho*. Therefore, Applicants respectfully request withdrawal of the objection to claim 20 which depends from allowable claim 19.

**Conclusion:**

Applicants request reconsideration of the application and withdrawal of the rejection and the objection. Pending claims 11-20 are in condition for allowance, and Applicants request a favorable action.

The Office Action contains a number of statements reflecting characterizations of the related claims. Regardless of whether any such statements are identified herein, Applicants decline to automatically subscribe to any such statements or characterizations in the Office Action.

If there are any remaining issues or misunderstandings, Applicants request the Examiner telephone the undersigned representative to discuss them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,  
GARRETT & DUNNER, L.L.P.

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By                     /David M. Longo/                      
David M. Longo  
Reg. No. 53,235

/direct telephone: (571) 203-2763/